SFB 900

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▶ **TITLE**
Data quality and causal inference in Learning Health Systems: some challenges for algorithm developers.

▶ **SPEAKER**
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▶ **LOCATION**
Seminar Room Institute of Virology, Building J6
MHH, Carl-Neuberg-Str. 1
Hannover

**06.06.
2019**

5.00 PM (s.t.)

» Research of Jeremy Wyatt

Globally, health systems are increasingly rich in data and starved of skilled professionals. "Learning Health Systems" (LHS) promise rapid learning cycles to turn routine data into reliable algorithms, which should help fill gaps in human capacity and improve the safety, quality and efficiency of healthcare. However, LHS rely on clinical data being research-ready & bias-free, on inference methods that distinguish causation from association, and on effective, professionally acceptable methods to disseminate the intelligence, such as clinical decision support systems. This talk reviews two key challenges in the LHS cycle: the capture of high quality clinical data and causal inference from this data using propensity scoring, instrumental variable or regression discontinuity methods. This draws on two examples: estimating the impact on mortality of the drug ezetimibe from routine CPRD data and using several casual inference methods to estimate the effectiveness of chemotherapy in 45,000 Scottish women with breast cancer. I conclude that, before learning from data can become routine in health systems, we need more methodological research on tools to improve clinical data quality and on the reliability of causal inference methods.

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